THE CLARIUS GUIDE TO CCTV LIGHTING

Clarius® LED Illuminators

GJD DETECT & SECURE
Most crimes happen at night

One of the biggest challenges faced by a security professional is to ensure that video footage is 100% effective. This is made certain by making sure that there is always enough illumination on a given scene. Therefore, it is crucial to have high quality illumination during the hours of darkness. An easy way to achieve accurate and reliable CCTV footage is through the use of effective LED illuminators on-site.

Key factors when specifying LED illumination includes:

- **Coverage distance** – ensuring that there is enough light output for your illuminator(s) to provide enough illumination on the scene.
- **Field of view angle** – determining the horizontal field of view angle from the camera and illuminator(s) to the scene will help in the selection of the most suitable illuminator(s) for the job. If you know your camera chip size and lens configuration then determining the horizontal field of view angle is straightforward.
- **Diffuser lenses** – it is important to consider the need for diffuser lenses with your chosen illuminator(s) in order to help best achieve even illumination across a scene. The use of interchangeable diffuser lenses can enable the installer to quickly change the field of view angle of an illuminator if necessary.
- **Reliability, maintenance and running costs** – major deciding factors in choosing one LED illuminator manufacturer over another is the reliability of their product, the ease of installation and the long term running costs.
- **Wavelength** – selecting Infra-Red and/or White-Light LED illuminator(s) for your project will be determined by the application and camera type used on-site. Infra-Red illuminators are normally used for discrete covert applications and/or with monochrome CCTV cameras. White-Light illuminators are normally preferred when the scene is required to be illuminated for people walking at night or to deter them from entering the area. Normally coloured CCTV cameras are chosen for these applications.
What is light?

Light is electromagnetic radiation within a certain portion of the electromagnetic spectrum. The word light usually refers to visible light, which is visible to the human eye and is responsible for the sense of sight. Visible light is usually defined as having a wavelength in the range of 400nm to 700nm. Often, Infra-Red and ultraviolet are also called light. Infra-Red 850nm and 940nm are commonly used in night time CCTV surveillance cameras.

The human eye is tuned to the visible light part of the electromagnetic spectrum, typically 400nm (violet) to 700nm (red). Human eyes best operate in the middle of the visible light spectrum detecting green colours easily, whilst being able to detect certain colour reds and violets. Unlike the human eye, CCTV cameras are able to see beyond the visible light spectrum in particular Infra-Red wavelengths i.e. 850nm and 940nm. The larger the Infra-Red wavelength the more covert the light is deemed to be in the field.

Whilst light still remains a scientific phenomenon in the world of Physics by exhibiting properties of both particle and wave, it is light’s ability to be reflected off different surfaces and refracted through camera lenses, which make it useful for CCTV purposes. When light hits a surface it is typically reflected, diffused and absorbed or a combination of these effects. Typically the smoother an objects surface, the greater the reflection of light. Metal objects generally have excellent reflective properties, whilst objects with rough surfaces, such as concrete, typically have poor reflectivity.

Colour

It was not until the 17th century that Sir Isaac Newton discovered and proved that objects do not hold their own colours. When in fact the colour that an object appears to hold is simply a direct result of the visible wavelengths that are reflected. For example, when visible light shines down onto grass, the chlorophyll pigments within the grass blades do not absorb the green wavelengths but instead reflect them. Hence, when our eyes detect green wavelengths being reflected off the grass blades, human eyes determine the grass as being green in colour.

At night when the sun is not shining, an area will appear dark and black in colour to human eyes. However, when Infra-Red light illuminators are used in dark areas, human eyes cannot detect this part of the electromagnet spectrum, therefore the area still remains dark to humans. CCTV cameras are able to detect monochrome colours from surfaces that are reflecting Infra-Red light. Hence the reason Infra-Red Illuminators are often used at night to provide covert surveillance without causing light pollution.
Surfaces

Surfaces can have a real impact on the quality of CCTV footage. Diffusion, reflection and absorption are three key factors that determine how light interacts in a scene.

Diffusion relates to how the light is scattered when passing through objects. Reflection occurs when light hits a surface and bounces back. Surfaces that are uneven and textured will scatter the light in many different directions, in comparison smooth surfaces such as a mirror, provide a more focused reflection back to the CCTV camera.

Absorption is experienced when light is absorbed by the surface it is falling onto. A surface that appears dark, even when light falls onto it, is a surface that absorbs a lot of light. When light is absorbed the light energy is absorbed and dissipated as heat. A surface that appears a solid colour when light falls onto it is a surface that absorbs some light but not all. A surface that shines white in colour when light falls onto it is a surface that reflects all of the light.

Therefore, it is crucial to think about the scene’s surfaces when choosing your illuminator size and light output power to help determine how much light output that you may lose in a given scene.

Reflections

There are three types of reflection, Specular, Diffuse and Retro-reflection.

Specular

When a surface is completely smooth it reflects like a mirror and is said to be specular. The angle of incidence is equal to the angle of reflection.

Diffuse

When a surface has irregularities it reflects in all directions. A diffuse reflective surface can scatter light in all directions in equal amounts. This is know as Lambertian reflectance. Most objects reflect light in this way.

Retro-reflection

Retro-reflective surfaces reflect light back in the direction it originated. Typical examples of this are vehicle number plates and road signs. This is not a natural phenomenon and only occurs with specially designed man made materials.
**Light sources**

All CCTV cameras are dependent on high quality light, both day and night. Incandescent and halogen lamps can be used for CCTV purposes. However, these light sources are energy inefficient. Such bulb types use a lot of power of which typically 10% is related to the light output and the other 90% is wasted as heat energy. This makes them expensive to run and maintain. Today, most end-users have stopped using halogen or incandescent lights bulbs with CCTV cameras.

Fluorescent lamps are much more energy efficient. However, due to their construction and operation they produce a pulsating effect that is detected by CCTV cameras on screen.

High intensity discharge (HID) lamps do provide good colour rendition in CCTV applications and can provide up to 12,000 hours. One disadvantage of using HIDs is that they are prone to a slow start up time of typically 2-3 minutes, meaning they cannot be turned on immediately after being turned off. Low pressure sodium lamps give off a yellow glow, whereas metal halide lamps provide cool clear White-Light.

Light emitting diodes, LEDs, are semiconductor diodes that can emit a narrow band of light. LEDs are a fast growing alternative lighting solution for CCTV applications and are an extremely reliable and efficient light source. Most illuminators that utilise LEDs can have an operational life in excess of 10 years.

Surface mount technology, SMT, has advanced LED technology to the point where dual LED SMT packages are now being used by some manufacturers to produce very efficient LED illuminators to enhance CCTV surveillance at night.

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**Reflection in practice**

It should be noted that a camera, or a human eye, does not use the light on a scene as detected by a light meter, but the amount of light reflected back off the objects in the scene.

Different materials have different levels of reflectance which also differ with Infra-Red and White-Light. Typical examples are shown in the table below.

<table>
<thead>
<tr>
<th>Material</th>
<th>Infra-Red Reflectance %</th>
<th>White-Light Reflectance %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>Stone</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Foliage</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>Cotton Black</td>
<td>35</td>
<td>1</td>
</tr>
<tr>
<td>Cotton White</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>Nylon Black</td>
<td>15</td>
<td>1</td>
</tr>
</tbody>
</table>

Lighting for CCTV differs greatly from lighting designed for people. Lighting designers attempt to give a fixed light level in a particular area, for example 10 Lux. But this design assumes the person will be in the scene. With CCTV the light which reaches the camera can be reflected from the scene located a long distance away.

The image on the left shows an internal scene where most of the materials have a similar reflectance level. Giving a relatively uniform image.

In contrast, the image on the right is much less uniform with a large variance in the reflective properties of the objects in the scene. Resulting in bright and dark areas.
Infra-Red or White-Light?

One of the first decisions a CCTV designer faces is choosing between Infra-Red and White-Light illumination.

As Infra-Red does not contain colour visible to humans it cannot be used with colour cameras. To view Infra-red, monochrome or day/night cameras are required. CCTV cameras using Infra-Red only provide monochrome images. Infra-Red is ideal for applications that require covert surveillance or where visible light must be avoided for reasons of light pollution.

GJD designs LED illuminators in two standard wavelengths of 850nm and 940nm. Semi covert 850nm is most commonly used as it gives the best images because camera sensors are more sensitive at this wavelength. 940nm is covert but results in much shorter distances due to a reduction in camera sensitivity. A reduction of 40% in achievable distance can be expected when using 940nm.

If the end-user requires colour images then the only option is White-Light. GJD’s Clarius White-Light LED illuminators provide light output that matches the visible spectrum, unlike low pressure sodium lighting, which gives a yellow/orange light. Using incorrect lighting with a CCTV system can degrade performance by giving inaccurate colour rendition.

White-Light can also be used as a visible deterrent warning potential intruders and preventing crime.

Advantages of Infra-Red
- Longer distances than White-Light
- Zero light pollution
- Covert detection

Advantages of White-Light
- Provides full colour images
- Multi-purpose for people & CCTV
- Easy to set up

White-Light Illumination

White-Light LED illuminators are normally the preferred choice when the end-user wishes to observe an area where they want to provide both ambient light for both passersby and to act as visible deterrent to intruders, as well as providing enough light for the observing CCTV cameras.

White-Light LED illuminators have an array of light emitting diodes that have the ability to produce visible light across the whole spectrum between 400nm and 700nm. Typically, manufacturers of White-Light LED illuminators offer cool White-Light illuminators to provide optimum colour rendition for CCTV cameras.
Infra-Red Illumination

Infra-Red LED illuminators are normally the preferred choice when the end-user wishes to observe an area where they do not want additional light pollution at night, but still need to be able to observe the scene for movement and intruders.

Infra-Red LED illuminators have an array of light emitting diodes that have the ability to produce covert Infra-Red light. Typically, manufacturers of Infra-Red LED illuminators offer 850nm Infra-Red semi-covert illuminators and 940nm Infra-Red covert illuminators.

Regardless of whether a monochrome or a day-night CCTV camera is being used by the end-user, if Infra-Red LED illumination is being used on a scene then the CCTV images will always be monochrome.

Fig. 8 - Infra-Red Illuminators

Inverse Square Law

Light intensity output from an illuminator over a given distance is based on the inverse square law. Light obeys the inverse square law, which ultimately impacts on the performance of a CCTV system.

In simple terms the inverse square law works as follows: if you double the distance to target you reduce the light intensity to one quarter; if you halve the distance to target you quadruple the light intensity on the scene. This applies to both Infra-Red and White-Light Illuminators.

The general rule when selecting an illuminator is the greater the coverage distance, the larger the illuminator.

If we take the inverse square law and extrapolate it, we can determine distance multipliers. Take a single illuminator which will cover a certain distance, then it will take four illuminators to cover double the distance. Two illuminators together will cover 40% extra distance and three illuminators together will cover 70% extra distance.

Fig. 9 - Inverse square law
Beam patterns

When choosing an illuminator it is important that the field of view of the CCTV camera and the LED illuminator are matched as close as possible. Modern day LED illuminators can be specified with 10, 30, 60, 100 and 120 degree optics, or the end-user can opt for an interchangeable diffuser illuminator or even a dual panel illuminator, where the field of view angle can be varied on scene.

If the light output of the illuminator is too narrow it will produce ‘white out’ or glare in the middle of the picture.

If the light beam of the illuminator is too wide it will be outside the camera’s field of view and ultimately reduce the viewing distance as energy is wasted.

Fig.10 - Light beam too narrow

Fig.11 - Light beam too wide

Fig.12 - Matched camera FOV and light beam

The Clarius® Plus range of illuminators includes a new interchangeable lens diffuser system; which allows the user to quickly and easily alter the angle of illumination. Elliptical beam profiles allow more light to be delivered where it is needed, allowing both longer distances and minimal light wastage. The system also helps to prevent overexposure of foreground objects.

As standard the illuminator includes interchangeable lenses to deliver 10° circular, 30°x20°, 60°x30°, 80°x60° & 120°x50° elliptical beam profiles.

Fig.13 - Interchangeable diffuser lenses

With the Clarius DUO units installers and end-users can opt for adjustable illumination where they are able to vary two illuminators on a single bracket. This enables the end-user to maximise their system’s performance by adjusting the two illuminators on a single bracket from narrow angle beam to wide angle beam. This is further enhanced by the use of interchangeable diffuser lenses in each illuminator.

Fig.14 - Dual panel illuminator beam patterns
Camera mounting positions

Specular Reflection
This is not very common and is only seen in more specialised applications like machine vision.

Diffuse Reflection
Diffuse surfaces will reflect in all directions but the reflected light is stronger when the light hits the object square. Therefore, it is recommended that the camera is located near the illuminator looking directly at the target. This will avoid the camera seeing excessive shadows.

Retro-reflection
As mentioned on page seven, retro-reflection is mostly used when illuminating vehicle number plates and road signs. Camera location is critical as almost all the reflected light returns to the source. Hence the camera and the illuminator must be positioned together.

Light output
The light output that is produced by the LEDs in an illuminator can be controlled in several ways. Most illuminators allow the intensity of the light that is being projected onto a scene to be controlled by either remotely dialling into the illuminator or by manually adjusting the illuminator itself. This is achieved by either increasing or decreasing the LED power. The illuminator’s LED light output can also be controlled in terms of both direction and intensity through the use of both optics and diffusers.

Optics are normally placed on top of Surface Mount LEDs in order to channel the light into a certain direction of field. Most LED illuminator manufacturers offer a range of optics in order to provide narrow or wide beam angles of light. Narrow beam angles are typically considered 10 to 30 degrees, medium beams 50 to 80 degrees and wide angle beams 100 to 180 degrees.

Diffusers are another method of controlling the beam angle of an illuminator. GJD provides an interchangeable diffuser option with its Clarius Plus illuminators. Various diffuser inserts are provided so that the end user can adjust the light beam angle on scene to suit the application.
**Measuring light**

Lumens is a unit of light measurement otherwise known as luminous flux. The international system of units uses Lux as the units for Lumens. Lumens is simply the illuminous flux per unit area, or more simply how much light falls per unit area. Lux is only applicable to White-Light or simply 400-700nm. On a bright sunny day, a person can expect to find a Lux level outside anywhere between 10,000 to 100,000 Lux. Compared to an overcast day, which can reduce the outside Lux level by a factor of 10, therefore somewhere between 1,000-10,000 Lux. During twilight hours Lux level can fall to 1 to 100 Lux. A full moon at night will only deliver a Lux level of 0.1 Lux. Normal street lighting will typically produce around 5 Lux.

Infra-Red unlike White-Light is normally measured in thousandths of a Watt, more commonly referred to as milliwatts (mW). The unit of power is a Watt in the international system of units, after the Scottish inventor James Watt. Infra-Red LED illuminators can have their Infra-Red light output measured in mW per square metre, thus enabling performance to be measured and for comparisons to be made against different Infra-Red illuminators.

It is worth noting that LEDs are more energy efficient than incandescent or halogen illuminators, therefore the ratio of the light output over the illuminator power consumption will be higher.

**Camera lens vs chip size FOV angle**

When selecting an LED illuminator it is important to consider both the CCTV camera that you will be using, including the camera’s chip size and the size of the camera’s lens. Using simple trigonometry you can determine the required LED illuminator’s optic size required to achieve a matched field of view angle.

The table in Fig.19 can be used to help determine the required illuminator’s optic size based on your CCTV camera specification.

<table>
<thead>
<tr>
<th>Lens Size</th>
<th>1/4”</th>
<th>1/3”</th>
<th>1/2”</th>
<th>2/3”</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.8mm</td>
<td>60º Optics</td>
<td>100º Optics</td>
<td>120º Optics</td>
<td>120º Optics</td>
</tr>
<tr>
<td>4mm</td>
<td>60º Optics</td>
<td>100º Optics</td>
<td>100º Optics</td>
<td>100º Optics</td>
</tr>
<tr>
<td>6mm</td>
<td>30º Optics</td>
<td>60º Optics</td>
<td>60º Optics</td>
<td>100º Optics</td>
</tr>
<tr>
<td>8mm</td>
<td>30º Optics</td>
<td>60º Optics</td>
<td>60º Optics</td>
<td>60º Optics</td>
</tr>
<tr>
<td>12.5mm</td>
<td>30º Optics</td>
<td>30º Optics</td>
<td>30º Optics</td>
<td>60º Optics</td>
</tr>
<tr>
<td>16mm</td>
<td>10º Optics</td>
<td>30º Optics</td>
<td>30º Optics</td>
<td>30º Optics</td>
</tr>
<tr>
<td>25mm</td>
<td>10º Optics</td>
<td>10º Optics</td>
<td>30º Optics</td>
<td>30º Optics</td>
</tr>
<tr>
<td>50mm</td>
<td>10º Optics</td>
<td>10º Optics</td>
<td>10º Optics</td>
<td>10º Optics</td>
</tr>
</tbody>
</table>
PTZ and dome cameras

Pan and tilt zoom cameras and dome cameras are commonly mounted on to corners of buildings or on top of poles. Such cameras offer the ability to pan across a scene and zoom into potential intruders.

If a PTZ or dome camera is mounted on to a corner of a building, the camera will be able to provide a coverage angle of 270 degrees. Such coverage angle can be matched with two Clarius LED illuminators as shown in Fig.20.

If a PTZ or dome camera is mounted on to a pole, the camera will be able to provide a coverage angle of 360 degrees. Such coverage angle can be matched with two Clarius LED illuminators as shown in Fig.21.

Megapixel cameras

All CCTV cameras require light to be able to produce a picture from the scene. In recent years, CCTV cameras have been built with larger megapixel chips in order to produce superior resolution. However, if all other variables remain the same, as the resolution of the camera increases its sensitivity to light decreases.

For example the sensor on the right has four times the resolution of the sensor on the left. But the size of the individual pixels is much smaller hence it is less capable of collecting light. The lower resolution chip will therefore perform better in low light conditions.

Owing to the relationship between camera resolution and light sensitivity, it is clear that lighting for professional CCTV systems is becoming more important as the resolution of modern cameras increase.

Remember, the higher the camera resolution, the more light is required to give quality images.
The Clarius® Plus range of illuminators includes a new interchangeable lens diffuser system, which allows the user to quickly and easily alter the angle of illumination. Elliptical beam profiles allow more light to be delivered where it is needed, allowing both longer distances and minimal light wastage. The system also helps to prevent overexposure of foreground objects.

As standard the illuminator includes interchangeable lenses to deliver 10° circular, 30°x20°, 60°x30°, 80°x60° & 120°x50° elliptical beam profiles.
The Clarius® Duo Plus range of high performance LED illuminators are designed to provide class leading performance, long life and ultra low maintenance. They have numerous innovative features that are a great alternative to other lighting solutions and actually bring savings rather than being an extra cost to CCTV systems. Incorporating the latest ultra high power surface mount LEDs with enhanced optical output and outstanding reliability, they deliver excellent night time images.

The adjustable angle feature together with elliptical beam profiles allow the user to alter the angle of illumination to match the camera’s field of view. All Clarius® Duo Plus illuminators are provided with a 5 year warranty.

**Pressure equalisation vent**

**Easy independent angle adjustment**

**IP66 rated**

**Interchangeable diffuser lenses with elliptical beam profiles for optimal light distribution**

**Latest SMT Dual Core LED™ technology**

**CleanLITE® self cleaning lens coating technology**

**High quality anodised aluminium heatsink**

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**The Clarius® Plus range of high performance Infra-Red LED illuminators are designed to provide class leading performance, long life and ultra low maintenance. Incorporating the latest surface mount LEDs with enhanced optical output and outstanding reliability, they deliver excellent night-time images. Each unit is fitted with integrated control circuitry to carefully control LED output, delivering consistent illumination and projected working life in excess of 10 years. Installation is quick and easy, requiring only a 12-32V DC / 24V AC input.**

All Clarius® Plus illuminators are provided with a 5 year warranty.

**Integrated photo cell**

**12-32V DC/24V AC integrated control electronics**

**Pressure equalisation vent**

**Interchangeable diffuser lenses with elliptical beam profiles for optimal light distribution**

**Telemetry and camera day/night switching as standard**

**High quality anodised aluminium heatsink**

**CleanLITE® self cleaning lens coating technology**

**SECTORS**

- Residential
- Commercial
- Industrial
- Borders
- Military Bases
- Ports
- Power Plants
- Heritage
- Airports
- Prisons
The Clarius® LT range of entry level infrared LED illuminators are designed to provide class leading performance, long life and ultra low maintenance.

Incorporating the latest dual core surface mount LEDs with enhanced optical output and outstanding reliability, they deliver excellent night-time images.

Each unit is fitted with integrated control circuitry to carefully control LED output, delivering consistent illumination and projected working life in excess of 10 years.

Installation is quick and easy, requiring only a 12-32V DC / 24V AC input. GJD offer a 3 year warranty on the LT Illuminators.

### LT SHORT RANGE
- Easy installation
- CleanLITE® self cleaning lens coating technology
- Latest SMT Dual Core LED™ technology
- High quality anodised aluminium heatsink
- 12-32V DC / 24V AC controls

### LT MEDIUM RANGE
- Advanced LED optics available in angles of 30° or 90°

### POWER SUPPLIES
The Clarius® range of power supply units are IP67 rated, constant voltage devices ideal for powering the Clarius® range of LED lighting products.

They feature a regulated 24V DC output supplying continuous full rated current to load. The universal mains input voltage allows the power supply to be used across a wide geographical area while the highly efficient switch mode design ensures low operating costs and cool running.

They are available in four power variants from 30W to 150W, providing enough power for multiple units if required.

### MOUNTING BRACKETS
- SINGLE SMB1
- DOUBLE DMB1
- TRIPLE TMB1
- POLE MOUNTING PMB1

Other mounting options available

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**SECTORS**
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- BORDER
- MILITARY BASES
- PORTS
- POWER PLANTS
- BRIDGE
- AIRPORTS
- PRISONS

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**RECOMMENDED PSU**
- Model: ALT-30-24
  - Output: 24V DC / 1.25A
  - Input: 100-250V AC / 0.45A
  - Rating: IP67
  - Dimensions: 150 x 44 x 63mm

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**www.gjd.co.uk**
Solar farm perimeter detection enhanced with Clarius® Infra-Red illuminators

Solar farms are large-scale systems of solar photovoltaic (PV) panels, used to generate electricity. The farms often cover vast areas of land in rural areas, therefore it is essential that effective perimeter detection is in place to protect the infrastructure. GJD was employed to manufacture reliable security lighting to work in conjunction with the CCTV system on a solar farm in Cambridgeshire, to provide optimum security.

Challenge
The Cambridgeshire solar farm required intelligent detection lighting and a CCTV solution for a 13MW PV installation. Major project specifications included reliable security lighting, even in adverse weather conditions, accurate angle illumination and a light range of up to 95 metres. Given the nature of the project, it was also important that the selected lighting used very low power consumption, without compromising on quality and efficiency.

Detection solution
GJD worked closely with AGE CCTV Systems and the project manager at the solar farm to select the most suitable security lighting for the project. After careful consideration it was decided the high performance, Infra-Red Clarius® IM illuminator was the perfect lighting solution, as it is specifically designed to provide world class leading performance, long life and ultra-low maintenance.

Gary Whiteman, Director of AGE CCTV Systems commented: “AGE choose Clarius® LED illuminators from GJD to complement our CCTV system as it provides competitively priced, high performance LED lighting in a rural environment”.

Incorporating the latest surface mount LEDs with enhanced optical output and outstanding reliability, the Infra-Red Clarius® IM illuminator delivers high quality night-time images, as well as working in conjunction with black and white or day and night cameras, providing a light invisible to the human eye, but fully visible to the CCTV camera.

Each unit is fitted with integrated control circuitry to carefully control LED output, delivering consistent illumination for the farm and a projected working life in excess of 10 years.

Key facts
- Infra-Red Clarius® IM illuminators were installed on site
- IP67 weather proof rating
- Low power consumption (26W)
- Latest SMT LED Technology
- Distances up to 95 metres

www.gjd.co.uk
Clarius® White-Light illuminators installed at one of Italy’s main cargo ports.

Clarius® White-Light illuminators have recently been installed at one of Italy’s main cargo ports. These bespoke illuminators were specially designed in conjunction with Aitek S.p.A., the new container code recognition system, to provide 24 hours surveillance of cargo containers passing through checkpoint locations. The LEDs of the White-Light illuminators are pulsed at high current by the CCTV cameras, which are constantly scanning for information on the side of containers passing in and out of the port.

“We are very satisfied with Clarius® illuminators both in terms of performance and reliability” stated Massimo Massa, Project Manager at Aitek S.p.A.

GJD is one of the world’s most innovative leaders in British manufacturing and design of professional external detector equipment and energy efficient Infra-Red and White-Light LED illuminators.

All of GJD’s products go through stringent in-house testing procedures to ensure the functionality and high quality of finished products.

The company’s products utilise the latest technology including IP connectivity, which creates powerful security solutions where recording starts automatically, cameras are accurately directed to the location of intrusion and guards are alerted with detailed alarm information.

Other unique features of GJD products include covert electronics, providing the major benefit of undisclosed tracking of an intruder, programmable detection ranges, providing an “all in one” flexible detection solution and weather resistance for even the harshest of environments.

The company offers a comprehensive range of engineer friendly products, which are quick and easy to setup, energy efficient and cost effective. Innovative products are also backed up with UK and international technical support and training.
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